Sarah F. Majors

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Overview

Originally an archaeologist, I have transitioned to tech and am now looking to obtain a job in artificial intelligence. Currently taking a course on sensor fusion in C++ to further my understanding of the intersection of AI and robotics.

Sensor Fusion Projects

Time To Collision Calculator *Class Project*
Domains: C++, Computer Vision, Lidar, Sensor Fusion
- Utilize OpenCV to calculate a time to collision with lidar and with computer vision
- Experiment with various combinations of feature detection and keypoint matching to understand various characteristics of each including speed and number of matches found
- Analyze the differences in results of both lidar and CV TTC to see the limitations in the approach implemented

Lidar Obstacle Detection *Class Project*
Domains: C++, Lidar
- Utilized the Point Cloud Library to visualize and cluster real life point clouds in sequential frames

GraphSlam *Class Project*
Domains: Machine Learning
- Learn basic 2D Landmark Detection and Tracking
- Practice utilizing Kalman Filters, probability, linear algebra and learn basic motion models

Machine Learning Projects

Artillery Building Damage Detection
Domains: Computer Vision, Deployment, DevOps, MLOps
- Deployed an automated machine learning pipeline on AWS using Docker, Nvidia Triton, DVC, MLFlow, git
- Utilized a convolutional neural network to locate building footprints in satellite imagery before damage
- Using the output of the convolutional neural network and a satellite image of the same area but having sustained damage, ResNet50 output a classification for each footprint in the image from not damaged to destroyed
- Incorporated satellite imagery and data from UNOSAT, xBD, and PlanetLabs to achieve a large enough dataset to train, mitigate low resolution images, and access current data
- Created an API using FastAPI allowing users to upload satellite images and receive annotated images with damage information without using the command line or a notebook

Federated Learning Cluster
Domains: Privacy Enhancing Technologies, Federated Machine Learning, ARM
- Created a federated learning computational cluster on a set of four Raspberry Pi 3s and 4s to have a platform to further explore how federated learning works

Work History

Teamsense *January 2022 - June 2022*
Software Engineer
- Tech Stack: Python, Django, Typescript, React, Datadog, git

Rivers Agile *April 2019 - January 2022*
Software Consultant
- Tech Stack: Python, Plot.ly, Django, RabbitMQ, MQTT, VueJS, node, selenium, i18n, Docker, Vagrant, Gitea

Contractor *February 2018 - Janary 2019*
Data Analyst
- Tech stack: Python, Jupyter Notebooks, Golang, SQL, Matplotlib

Nightingale Security *October 2017 - February 2018*
Software Intern
- Tech stack: JavaScript, PHP, Angular, GoogleMapsAPI, git